

*CHERAX CARTALACOOLOAH*, A NEW SPECIES OF FRESHWATER CRAYFISH  
(DECAPODA: PARASTACIDAE) FROM NORTHEAST AUSTRALIA

JOHN W. SHORT

Short J.W. 1993 06 30: *Cherax cartalacoolah*, a new species of freshwater crayfish (Decapoda: Parastacidae) from northeast Australia. *Memoirs of the Queensland Museum* 33(1): 55-59 Brisbane. ISSN 0079-8835.

A new species of freshwater crayfish, *Cherax cartalacoolah*, from eastern Cape York Peninsula, Queensland is described and illustrated. The new species most closely resembles *C. robustus* Riek, 1951, which occurs in similar, sand dune habitats in southeast Queensland, and can be distinguished by the morphology of the carapace and first chelipeds. □ *Crustacea*, *Parastacidae*, *Cherax*, new species, northeastern Australia. *Cape York Peninsula, freshwater, taxonomy, biology*.

John W. Short, Queensland Museum, PO Box 3300, South Brisbane, Queensland 4101, Australia; 3 March, 1993.

Australian species of *Cherax* Erichson were last revised by Riek (1969), who listed 27 species. Short (1991) described *C. nucifraga* from the Northern Territory.

*Cherax cartalacoolah* sp.nov. was brought to my attention in October 1991 by Mr Rolly McKay, Queensland Museum. Only two immature specimens and a number of carapace fragments and chelae were available but this was sufficient to establish that the species was new to science. A Queensland Museum expedition to the Cape Flattery area in November 1992 by Mr Peter Davie and myself, collected further material including mature adult specimens.

Abbreviations used in text: QM, Queensland Museum; CL, postorbital carapace length; T, thoracic sternite, T6, thoracic sternite six etc.

*Cherax cartalacoolah* sp.nov.  
(Figs 1-3, 4A,B)

MATERIAL EXAMINED

HOLOTYPE: QM W18224, ♂ (30.3mm CL), Cape Flattery, second creek south of headland, 14°59.2'S, 145°20.2'E, supralittoral, in burrow amongst rushes fringing lagoon, peaty sand, freshwater, pH 5, hardness 40ppm, water temperature 33°C, dissolved oxygen 1.7ppm, altitude c.10m, 16/11/1992, J. Short, P. Davie.

ALLOTYPE: QM W18225, ♀ (23.6mm CL, right cheliped missing, left damaged at base of pollex), from same burrow as holotype.

PARATYPES: QM W17231, ♀ (14.4mm CL), Arnies Lake, Cape Flattery, 14°58'S, 145°19.5'E, 11/10/1991, R. McKay. QM W17234, ♂ (18.4mm CL), Windmill Lake, Cape Flattery, 14°58'S, 145°17.5'E, 13/09/1991, R. McKay. QM W18223, ♀ (16.2mm CL), Vince's Lake, Cape Flattery, 14°59'S,

145°16'E, supralittoral, burrow in bank of artificial drainage channel, peaty sand, altitude c.15m, 16/11/1992, J. Short, P. Davie. QM W18226, ♂ (13.7mm CL), 1 imm. (7.3mm CL), same locality and physiochemical data as holotype and allotype, in burrows along water line of lagoon. QM W18228, 4♂♂ (12.5-24.9mm CL), ♀ (19.8mm CL), Cape Flattery, 14°59.2'S, 145°18'E, 0.75m, artificial drainage channel, freshwater, peaty sand, water tannin-stained, fringing heathland/rushes, pH 5, hardness 80ppm, 17/11/1992, trapped, J. Short, P. Davie.

COMPARATIVE MATERIAL: *Cherax robustus* Riek, 1951 (from the vicinity of the type locality), QM W15312, 12♂♂ (17.0-30.4mm CL), 5♀♀ (17.9-25.2mm CL), Coomboo Lake, Fraser Is., 25°14'S, 153°10'E, in burrows around periphery of lake, 17/06/1987, S. Brooks, M. Tait.

DESCRIPTION OF HOLOTYPE

Rostrum triangular, dorsally flattened, slightly recurved distally, punctate proximally, glabrous to base of acumen; length c. 1.3 × breadth (1.6-2.3 in allotype/paratypes), reaching penultimate segment of antennular peduncle (terminal segment in small paratypes); with moderately-developed lateral carinae, carinae commencing in line with postorbital processes, terminated at base of acumen by blunt process (spinate in several paratypes, particularly smaller specimens); ventrolateral margins setose; acumen blunt (acute in allotype/paratypes), setose.

Eyes with cornea large, globular, well pigmented, eyestalks slightly concealed by rostrum. Antennula without unique features. Scaphocerite short, length c. 1.9 × breadth (2.0-2.4 in allotype/paratypes), reaching end of rostrum (slightly exceeding rostrum in allotype/paratypes), broad-

est at mid-length; lamina broadly rounded mesially, lateral margin terminating in well developed spine. Antennal peduncle setose ventrally, coxocerite acute anteriorly (spinose in allotype/paratypes), basicerite laterally spinose.

Carapace punctate, breadth c.0.6×CL, depth c.0.6×CL; postorbital carinae poorly developed, excavated with interconnected punctations, forming irregular sulcus, armed with blunt process

anteriorly (spinose in allotype/paratypes), diverging posteriorly, length c.1/3 cephalon length; cephalon with few tubercles ventrally (absent in small paratypes); branchiostegites slightly inflated, with few indistinct tubercles along cervical groove (spines on allotype/paratypes), granulate anteriorly (non-granulate in smaller paratypes); branchiocardiac grooves distinct (indistinct or absent in paratypes).



FIG.1. *Cherax cartalacoolah* sp.nov., holotype ♂ (30.3mm CL), QM W18224, dorsal view.

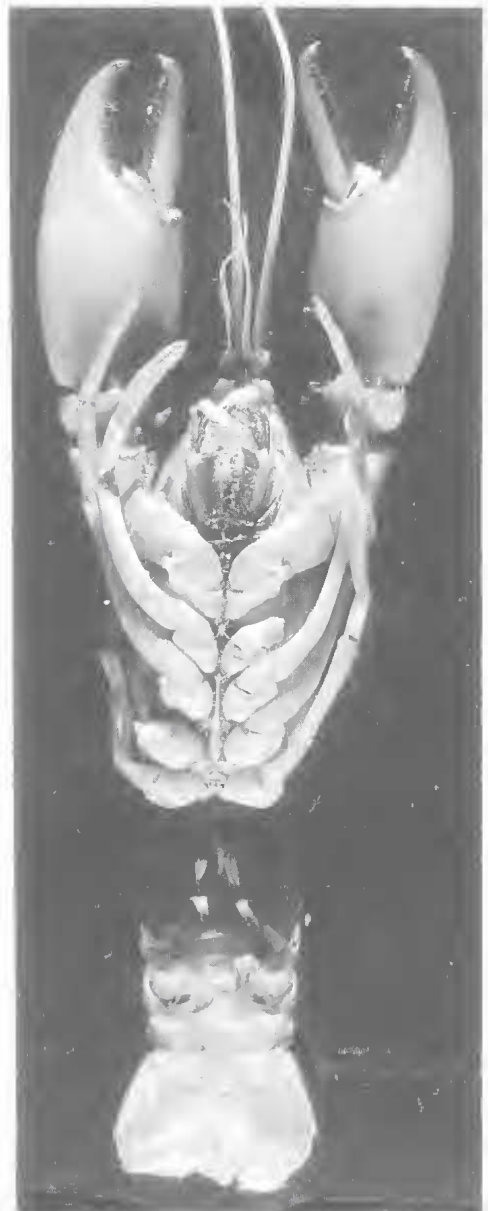


FIG.2. *Cherax cartalacoolah* sp.nov., holotype ♂ (30.3mm CL), QM W18224, ventral view.

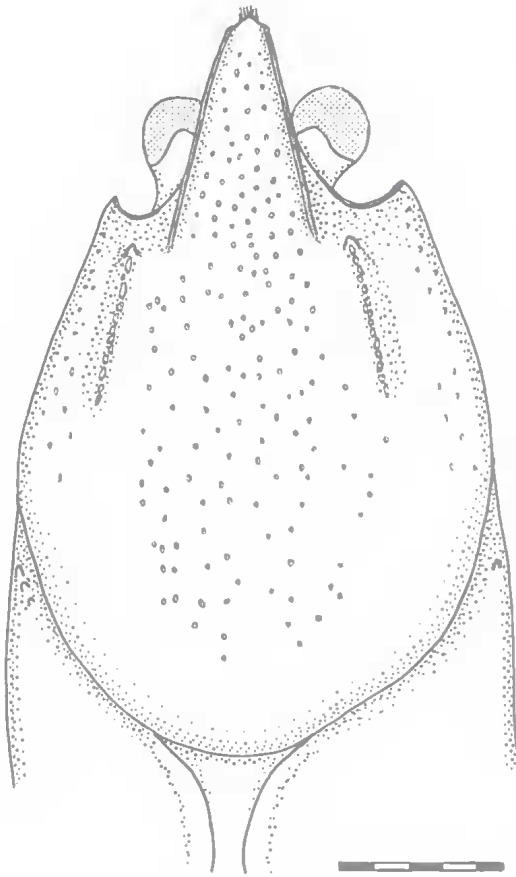


FIG.3. *Cherax cartalacoolah* sp.nov., holotype ♂, QM W18224, anterior carapace and rostrum. Scale divisions in mm.

Epistome slightly concave, sparsely setose, without obvious tubercles, lateral margins entire, slightly crenulate. Mouthparts without unique features. Branchial formula typical for genus (cf. Holthuis, 1949), with posterior arthrobranch above fourth pereopod reduced.

First chelipeds large, subequal (isomorphic in paratypes), distal merus reaching end of scaphocerite (carpus in allotype/paratypes); outer margin of chelae moderately convex; fingers without obvious gape, opposing edges densely setose, bearing low rounded teeth; pollex broad basally; dactylus equal to manus in length; manus moderately broad, breadth equal to length (less than length in paratypes), dorsum moderately-convex longitudinally (slightly convex in allotype/paratypes), strongly convex laterally, mesial margin serrations restricted to proximal half; carpus c.0.3

chela length, bearing large, uncinat mesial spine, blunt process at anteroventral condyle (acute in paratypes), similar process at ventromesial angle followed by two or three tubercles posteromesially, anteromesial angle with dense pubescence of long setae; merus of typical shape, c.0.6 chela length, dorsal carina armed with blunt process (spinat in allotype/paratypes) followed by series of tubercles, ventral surface with pubescence of setae and numerous strong cuticular processes, two or three larger than rest (spinat in allotype/paratypes).

Sternal kcci sharp, without spines, lateral processes juxtaposed on T7 and T8, bearing conspicuous pores on T6 and T7. Abdomen punctate, somite 2 pleurac with deep concavity.

#### COLOURATION

Body colour varying from rusty brown to bluish-grey, ventral manus of first chelipeds magenta to cyanine blue, articular membranc between merus and carpus granium red.

#### BIOLOGY

Freshwater, fossorial, burrows terminating slightly below level of water table, supralittoral to shallow littoral areas around perch lakes and along creek banks. Collected from low altitude <15m, peaty sand areas within sand dune formations, generally amongst rushes, fringing heathland. Recorded physiochemical tolerances: pH 5, hardness 40-80ppm, water temperature 33°C, dissolved oxygen 1.7ppm.

#### DISTRIBUTION

Cape Flattery, northeast Queensland. It is likely, with further collecting, that the range of this species will be extended into other sand dune areas between Cape Bedford and Lookout Point.

#### ETYMOLOGY

An aboriginal word meaning 'a water hole between two sandhills' (cf. Reed, 1970), which is an accurate description of the type locality. The specific name is to be treated as a noun in apposition.

#### SYSTEMATIC POSITION

The new species most closely resembles *C. robustus* Rick, 1951, from southeast Queensland, which also occurs in acidic, peaty-sand habitats and has similar colouration. The following morphological features can be used to distinguish the two species:

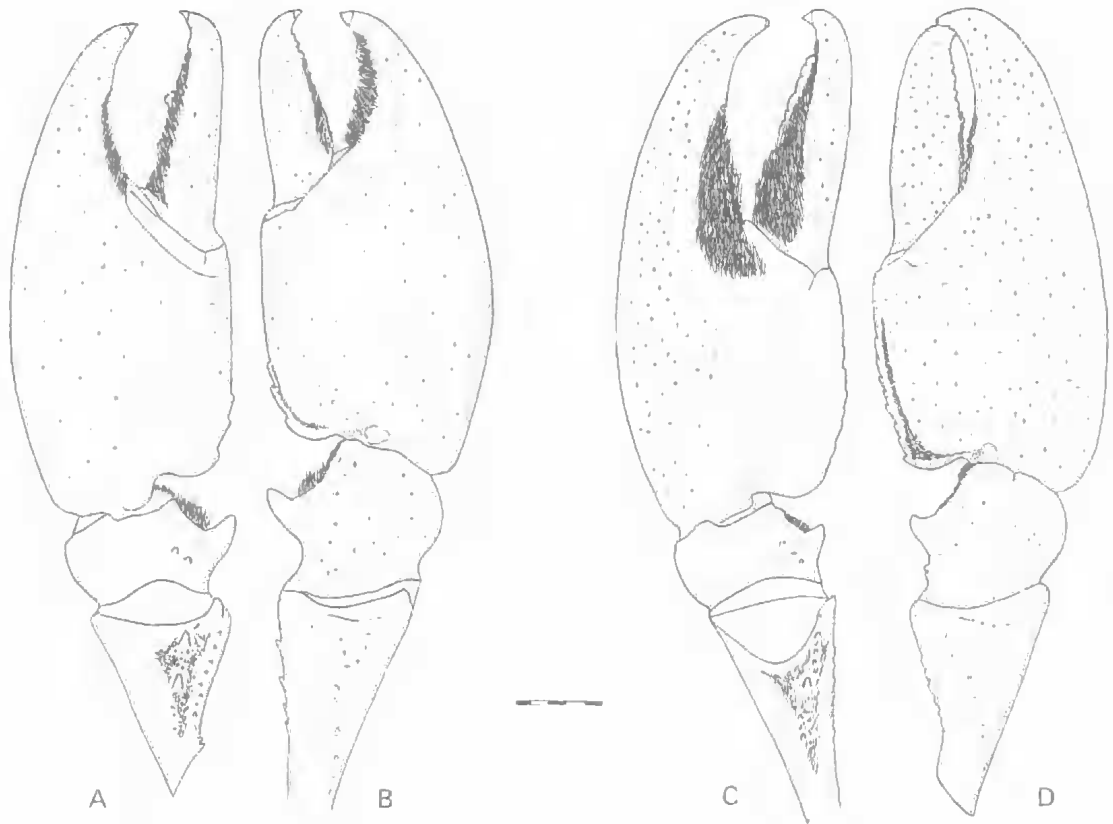


FIG.4. *Cherax cartalacoolah* sp.nov., holotype ♂, QM W18224: A, ventral view of right first cheliped; B, dorsal view of right first cheliped. *Cherax robustus* Riek, 1951, ♂ (30.2mm CL), QM W15312: C, ventral view of right cheliped; D, dorsal view of right cheliped. Scale divisions in mm.

1. The mesial carpal spine on the first chelipeds is much stouter in *C. robustus* and is usually followed by one or more tubercles. In the present species there are no tubercles behind the spine.

2. The ventral setation on the pollex of the first chelipeds continues for some distance onto the manus in *C. robustus*. In the present species the setation is restricted to the opposing edge of the pollex and does not continue onto the manus.

3. The mesial serrations on the manus of the first chelae continue over about two thirds of the mesial margin length in *C. robustus* whereas in the present species they are restricted to the proximal half.

4. Large adults of the new species have well-developed, branchiocardiac grooves which are lacking in *C. robustus*.

5. The punctations along the postorbital carinae form an irregular sulcus in the present species. In *C. robustus* the punctations sometimes connect anteriorly, but are otherwise well separated.

*C. cartalacoolah* can easily be separated from nominal species of the 'depressus' group (sensu Riek 1969), which also occur east of the Great Dividing Range in northeast Queensland, by the presence of setal pubescences on the mesial carpus and ventral merus of the first chelipeds.

*C. rhyuchotus* Riek, 1951, which occurs in similar habitats to the new species on northern Cape York Peninsula and Badu Is., Torres Strait, is not a closely allied species and belongs instead to the 'quadricarinatus' species-group (cf. Short, 1991).

#### ACKNOWLEDGEMENTS

I am grateful to Rolly McKay for bringing this crayfish to my attention. Peter Davie is thanked for allocating QM resources towards the collection of further material, and for his expertise in the field. Des Bolton, Natural Resource Assessments Pty Ltd, kindly organised the assistance of

Cape Flattery Silica Mines Pty Ltd and the Hopevale Aboriginal Community preceding the 1992 collecting trip to Cape Flattery. I am also indebted to John Benfield, Cape Flattery Silica Mines Pty Ltd, for the use of facilities and the assistance of his staff. In particular, Paul Miller provided support and local knowledge during the collecting effort. Mr Steve Brooks donated specimens of *C. robustus* to the QM. Jeffery Wright printed the photographs.

#### LITERATURE CITED

- HOLTHUIS, L.B. 1949. Decapoda Macrura with a revision of the New Guinea Parastacidae. Zoological Results of the Dutch New Guinea Expedition 1939. No.3. Nova Guinea 5:289-328, pls 2-9.
- REED, A.W. 1970. 'Aboriginal Place Names and their meanings'. (Reed Books Pty Ltd: Frenchs Forest)
- RIEK, E.F. 1951. The freshwater crayfish (family Parastacidae) of Queensland. Records of the Australian Museum 22:368-388, figs 1-13.
1969. The Australian freshwater crayfish (Crustacea: Decapoda: Parastacidae), with descriptions of new species. Australian Journal of Zoology 17:855-918, figs 1-20.
- SHORT, J.W. 1991. *Cherax nucifraga*, a new species of freshwater crayfish (Crustacea: Decapoda: Parastacidae) from the Northern Territory, Australia. The Beagle, Records of the Northern Territory Museum of Arts and Sciences 8(1):115-120, figs 1-4.